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ARRIS INTERNATIONAL, INC			GREENE, JOSEPH L	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/827,155	<b>Applicant(s)</b> SHAH ET AL.
	<b>Examiner</b> JOSEPH L. GREENE	<b>Art Unit</b> 4152

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 19 April 2004.
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-18 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 19 April 2004 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/0256/06)  
 Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_

**DETAILED ACTION**

1. Claims 1 - 18 are pending in this application.

***Claim Objections***

2. The following claims are objected to for containing a lack of antecedent basis.

- (a) Claim 1, line 8, contains the limitation "the frequency value."
- (b) Claims 6, 12, and 18 , line 1, contain the limitations "the stored truncation error" and "the frequency offset message" and "the offset word."
- (c) Claims 8, line 9, and 14, line 8, contain the limitation "the device."
- (d) Claims 10 and 16, line 2, contain the limitation "the communication device."
- (e) Claim 13, line 6, contains the limitation "the frequency offset."
- (f) Claim 15, line 1, contains the limitation, "the frequency offset word."

***Specification***

3. The following sections in the specification are objected to for improper use of grammar.

- (a) Section 0017 contains the sentence "Fig.1 illustrates a flow

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chart for a method 100 for increasing the accuracy of applying a ranging offset frequency used to command a communication to device to tune from a currently tuned frequency to a new frequency.

- (b) Section 0017 contains the sentences "As the modem is performing its ranging operation, ranging being known in the art, with another device being communicated with. This other device may be a cable modem termination system (CMTS) known in the art, for example."
- (c) Section 0024 contains the phrase "it will be appreciate that."

4. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

- (a) Claim 5 recites the limitation "the truncation error is stored."
- (b) Claim 6 recites the limitation "the stored truncation error is used to facilitate generating the frequency offset word."

### *Drawings*

5. The following drawing is objected to for a misspelling.
- (a). Figure 1, step 104, contains the device "device." For examination purposes, the aforementioned limitation will be treated as if it read device.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**7. Claims 1-4 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Dapper et al. (Pre-Grant Publication No. US 2001/0032334 A1), hereinafter Dapper.**

8. With respect to claim 1, Dapper discloses a method for increasing the ranging offset resolution/accuracy of a communication device (0027, lines 1-5) attempting to adjust its upstream frequency to which it is currently tuned (0308, lines 1-4) to match a desired frequency, comprising: determining a frequency offset (0317, lines 1-6) based on the difference between the actual currently tuned frequency (0319, lines 8-19, where the downstream frequency is the same as the HDT frequency that is producing the downstream frequency) and the desired frequency (0319. lines 8-12, where the desired frequency is present. Otherwise there would be random frequency offsets and the device would not match each other); digitizing the frequency offset into a frequency offset word (0317, lines 13-16, this shows digitizing the data; 0463, lines 1-7, this

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shows that the data is stored as words); and tuning the communication device by adjusting the actual currently tuned frequency by the frequency value corresponding to the frequency offset word (0308, lines 1-4, this shows the frequency being adjusted. It has already been previously shown that the data is stored as words).

9. As for claim 2, Dapper discloses wherein the frequency offset word is applied to a currently tuned frequency word (0317, lines 13-16 and 0463, lines 1-7).

10. As for claim 3, Dapper discloses wherein the currently tuned frequency word resides in the communication device (0316, lines 1-4).

11. As for claim 4, Dapper discloses wherein the communication device is a cable modem (0537, lines 1-6).

12. As for claim 7, Dapper discloses wherein the desired frequency is a new frequency with respect to a most recently commanded frequency (0319, lines 8-19).

***Claim Rejections - 35 USC § 103***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**14. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper, as applied to claim 1 above, in view of Wang et al. (Pre-Grant Publication No. US 2003/0215011 A1), hereinafter Wang.**

15. As for claim 5, Dapper teaches wherein digitizing the frequency offset results in truncation, or quantization error (0533, lines 6-15), but Dapper doesn't teach wherein the truncation error is stored. However, Wang does teach the truncation error being stored (0294, lines 37-38). It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teaching of Dapper in order to store truncation errors, as taught by Wang. In doing so, the accuracy of the frequency adjustments would be increased by keeping track of the truncations that have occurred.

**16. Claims 6, 8-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper, in view of Wang, and in further view of Applicant's Admitted Prior-Art, hereinafter AAPA.**

17. As for claim 6, it is rejected on the same basis as claim 5 above. The combination of Dapper and Wang do not disclose wherein the stored truncation

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error is used to facilitate generating the frequency offset message if the offset word is to be applied to the currently commanded frequency instead of the actual frequency. However, AAPA teaches wherein the stored truncation error is used to facilitate generating the frequency offset message if the offset word is to be applied to the currently commanded frequency instead of the actual frequency (0003, lines 10-14, 0008, lines 1-6). It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teachings of Dapper and Wang, in order to generate a frequency offset message, as taught by AAPA in order to have a simple and easy protocol to allow the devices to communicate frequency adjustments.

18. With respect to claim 8, Dapper teaches a method for increasing the ranging offset resolution/accuracy (0027, lines 1-5) of a cable modem (0537, lines 1-6) attempting to adjust its upstream frequency to which it is currently tuned (0308, lines 1-4) to match a desired frequency, comprising: determining the frequency offset (0317, lines 1-6) based on the difference between the actual currently tuned frequency (0319, lines 8-19, where the downstream frequency is the actual currently tuned frequency; 0318, lines 1-3, this shows that the ISU frequency is the same as the HDT frequency that is producing the downstream frequency) and the desired frequency (0319, lines 8-12, where the desired frequency is present. Otherwise there would be random frequency offsets and the device would not match each other); digitizing the frequency offset into a frequency offset word (0317, lines 13-16, this shows digitizing the data; 0463,

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lines 1-7, this shows that the data is stored as words); and tuning the device by adjusting the actual currently tuned frequency by the frequency value corresponding to the frequency offset word (0308, lines 1-4, this shows the frequency being adjusted. It has already been previously shown that the data is stored as words).

Conversely, Dapper doesn't teach determining, at a CMTS, the actual upstream transmission frequency of the cable modem. However, AAPA does teach determining, at a CMTS, the actual upstream transmission frequency of the cable modem (0008, lines 1-6). It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teachings of Dapper, in order to determine frequency offsets at the CMTS, as taught by AAPA, doing so would improve the efficiency of the system by accurately determining the upstream frequency.

19. As for claim 9, it is rejected on the same basis as claim 8 above. In addition, Dapper teaches wherein the frequency offset word is applied to a currently tuned frequency word (031713-16 and 0463, lines 1-7).

20. As for claim 10, it is rejected on the same basis as claim 9 above. In addition, Dapper teaches wherein the currently tuned frequency word resides in the communication device (0316, lines 1-4).

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21. As for claim 11, it is rejected on the same basis as claim 8 above. In addition, Dapper teaches wherein digitizing the frequency offset results in truncation, or quantization error (0533, lines 6-15), but Dapper doesn't teach wherein the truncation error is stored. However, Wang does teach the truncation error being stored (0294, lines 37-38). It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teaching of Dapper in order to store truncation errors, as taught by Wang. In doing so, the accuracy of the frequency adjustments would be increased by keeping track the truncations that have occurred.

22. As for claim 12, it is rejected on the same basis as claim 11 above. In addition, AAPA teaches wherein the stored truncation error is used to facilitate generating the frequency offset message if the offset word is to be applied to the currently commanded frequency instead of the actual frequency (0003, lines 10-14). It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teachings of Dapper and Wang, in order to generate a frequency offset message, as taught by AAPA in order to have a simple and easy protocol to allow the devices to communicate frequency adjustments. Furthermore, even though the use of a frequency offset message is not directly disclosed, it is most likely used in the system to communicate frequency adjustments.

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21. With respect to claim 13, Dapper teaches a method for reducing the upstream tuning error (0027, lines 1-5) of a cable modem (0537, lines 1-6), the method comprising updating a software load of the cable modem with software that includes steps for adjusting the current upstream carrier frequency of the modem (0247, lines 7-12, where all of the operations of the system are being carried out by the software) such that the actual adjusted frequency tuned to, based on the frequency offset, is bounded by only one truncation error instead of two with respect to the desired frequency (0319, lines 8-19, where the downstream frequency is the actual currently tuned frequency; 0318, lines 1-3, this shows that the ISU frequency is the same as the HDT frequency that is producing the downstream frequency. Furthermore, even though Dapper doesn't directly disclose having only one truncation error, he does express that his system is designed to have high accuracy 0027, lines 1-5 and the steps that are taking place in the applicant's system for decreasing the truncation error are taking place in Dapper's system as well).

On the other hand, Dapper doesn't teach receiving a ranging frequency offset from a CMTS. However, AAPA does teach receiving a ranging frequency offset from a CMTS (0008, lines 1-6). It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teachings of Dapper, in order to determine frequency offsets at the CMTS, as taught by AAPA, doing so would improve the efficiency of the system by taking the burden of frequency calculations away from the cable modem device that already contains a fair load of work.

22. As for claim 14, it is rejected on the same basis as claim 13 above. In addition, Dapper teaches wherein the updated software load further comprises: a frequency offset (0317, lines 1-6) based on the difference between the actual currently tuned frequency (0319, lines 8-19, where the downstream frequency is the actual currently tuned frequency; 0318, lines 1-3, this shows that the ISU frequency is the same as the HDT frequency that is producing the downstream frequency) and the desired frequency (0319, lines 8-12, where the desired frequency is present. Otherwise there would be random frequency offsets and the device would not match each other); digitizing the frequency offset into a frequency offset word (0317, lines 13-16, this shows digitizing the data; 0463, lines 1-7, this shows that the data is stored as words); and tuning the device by adjusting the actual currently tuned frequency by the frequency value corresponding to the frequency offset word (0308, lines 1-4, this shows the frequency being adjusted. It has already been previously shown that the data is stored as words).

Conversely, Dapper doesn't teach determining at a CMTS the actual upstream transmission frequency of the cable modem. However, AAPA does teach determining, at a CMTS, the actual upstream transmission frequency of the cable modem (0008, lines 1-6). It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teachings of Dapper, in order to determine frequency offsets at the CMTS, as taught by AAPA, doing so would improve the efficiency of the system by taking the burden

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of frequency calculations away from the cable modem device that already contains a fair load of work.

23. As for claim 15, it is rejected on the same basis as claim 13 above. In addition, Dapper teaches wherein the frequency offset word is applied to a currently tuned frequency word (031713-16 and 0463, lines 1-7).

24. As for claim 16, it is rejected on the same basis as claim 15 above. In addition, Dapper teaches wherein the currently tuned frequency word resides in the communication device (0316, lines 1-4).

28. As for claim 17, it is rejected on the same basis as claim 14 above. In addition, Dapper teaches wherein digitizing the frequency offset results in truncation, or quantization error (0533, lines 6-15), but Dapper doesn't teach wherein the truncation error is stored. However, Wang does teach the truncation error being stored (0294, lines 37-38). It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teaching of Dapper in order to store truncation errors, as taught by Wang. In doing so, the accuracy of the frequency adjustments would be increased by keeping track the truncations that have occurred.

29. As for claim 18, it is rejected on the same basis as claim 17 above. In addition, AAPA teaches wherein the stored truncation error is used to facilitate

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generating the frequency offset message if the offset word is to be applied to the currently commanded frequency instead of the actual frequency (0003, lines 10-14). It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teachings of Dapper and Wang, in order to generate a frequency offset message, as taught by AAPA in order to have a simple and easy protocol to allow the devices to communicate frequency adjustments. Furthermore, even though the use of a frequency offset message is not directly disclosed, it is most likely used in the system to communicate frequency adjustments.

### ***Conclusion***

30. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- (a) Rakib (Pre-Grant Publication No. US 2004/0181811 A1),  
secondary primary art.
- (b) Dale et al. (Pre-Grant Publication No. US 2004/0022307 A1), method  
for modifying DOCSIS based transmission paths.
- (c) Quigley et al. (Patent No. US 7,103,065 B1), a cable transmission  
system.

31. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSEPH L. GREENE whose telephone

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number is (571)270-3730. The examiner can normally be reached on Monday - Thursday from 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nabil El-Hady can be reached on (571) 272-3963. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JLG

/Nabil El-Hady, Ph.D, M.B.A./

Supervisory Patent Examiner, Art Unit 4152

